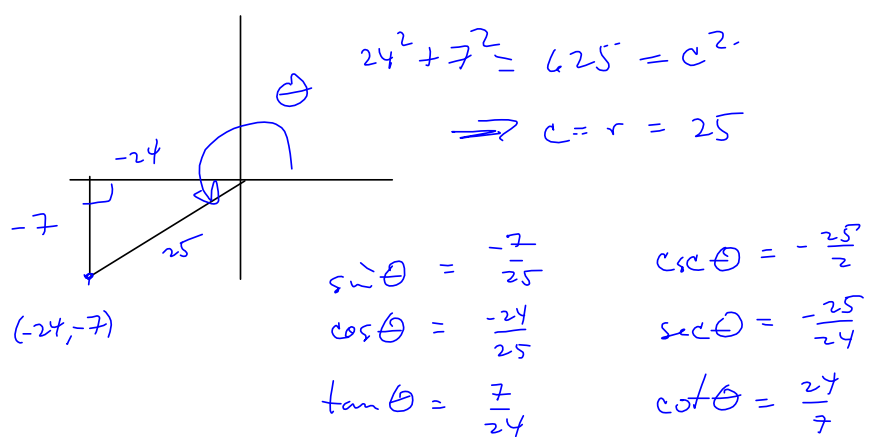
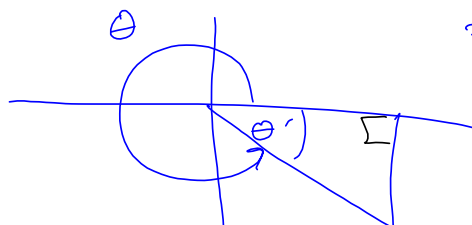


§1.4 #5,



§1.4 Find reference angle θ' for $\theta = 5.5$

$$(5.5) \left(\frac{180}{\pi} \right) \approx 315.1267873$$



$$-0.7831853078$$

$$360 - 315.1267873$$

$$= 44.8732127 \approx \theta'$$

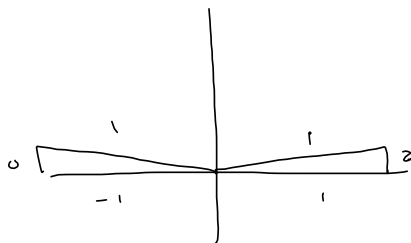
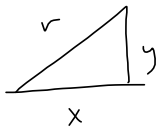
$$44.8732127^\circ$$

$$\approx 0.7831853078$$

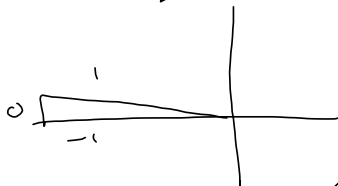
$$\approx \boxed{0.7832} \approx \boxed{44.8732^\circ}$$

$\cot \theta$ ~~\neq~~

$$\tan \theta = \frac{y}{x} \Rightarrow \cot \theta = \frac{x}{y} = \frac{?}{0}$$



$$\frac{\pi}{2} < \theta < \frac{3\pi}{2} \Rightarrow$$



$$\sin \theta = \frac{0}{1} = 0$$

$$\csc \theta$$
 ~~\neq~~

$$\cos \theta = \frac{-1}{1} = -1$$

$$\sec \theta = -1$$

$$\tan \theta = \frac{0}{-1} = 0$$

$$\cot \theta$$
 ~~\neq~~

↗

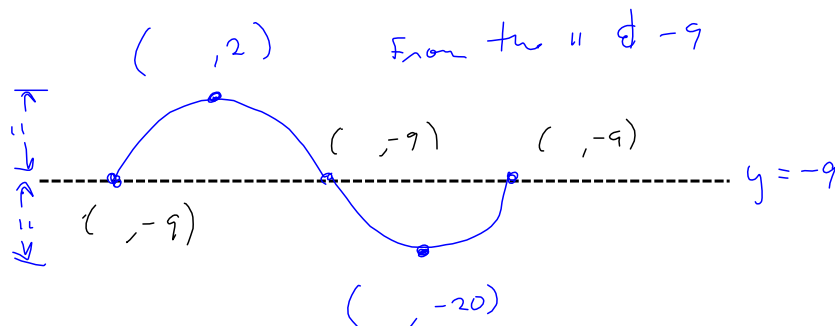
$$\sin^- = 0$$

→ $\sin^- \theta$ w/o its argument is \sin , which is a \sin .

Test 1, Fall '18 Graphing

$$f(x) = 11 \sin\left(\frac{\pi}{8}x - \frac{7\pi}{8}\right) - 9$$

Amplitude
midline



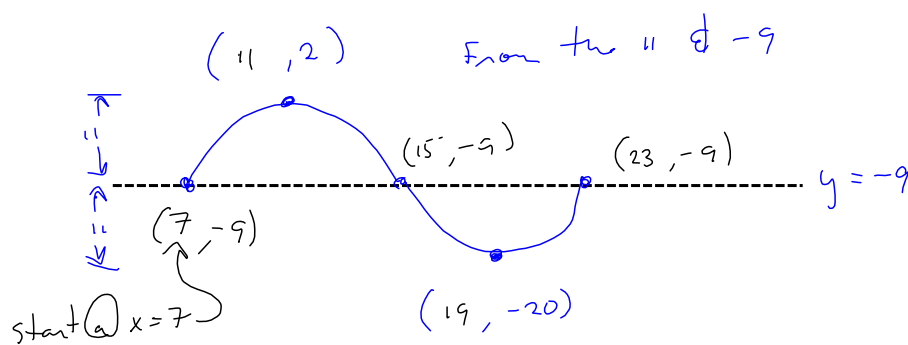
$$\text{Now, } \frac{\pi}{8}x - \frac{7\pi}{8} = \frac{\pi}{8}(x - 7)$$

$$\left(\text{To see this: } \frac{\pi}{8}x - \frac{7\pi}{8} = \frac{\pi}{8}\left(\frac{\pi}{8}x - \frac{7\pi}{8}\right)\right)$$

$$\text{Now } \frac{7\pi}{8} \div \frac{\pi}{8} = \frac{7\pi}{8} \cdot \frac{8}{\pi} = 7$$

Start @ $x = 7$

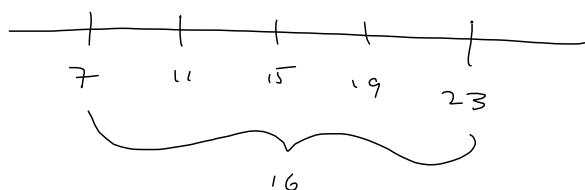
$$\text{So, } 11 \sin\left(\frac{\pi}{8}(x - 7)\right) - 9$$



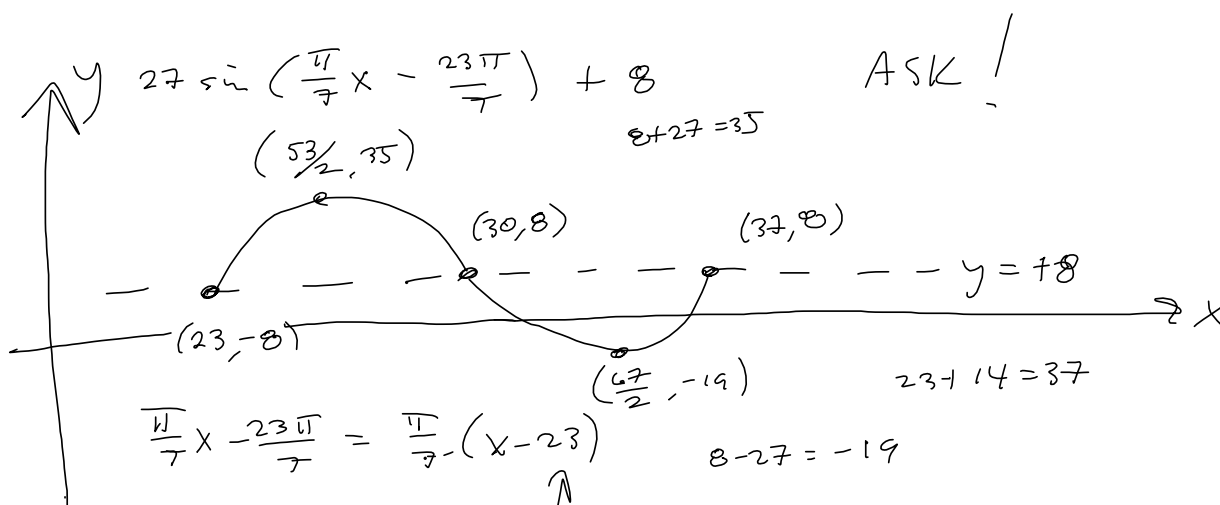
Now, Period:

$$\frac{\pi}{8}x = 2\pi \quad \text{when?}$$

$$x = 2\pi \cdot \frac{8}{\pi} = 16 = \text{Period}$$



$$\frac{16}{4} = 4$$



$$\frac{\pi}{7}x = 2\pi$$

$$x = 14 = \text{Period}$$

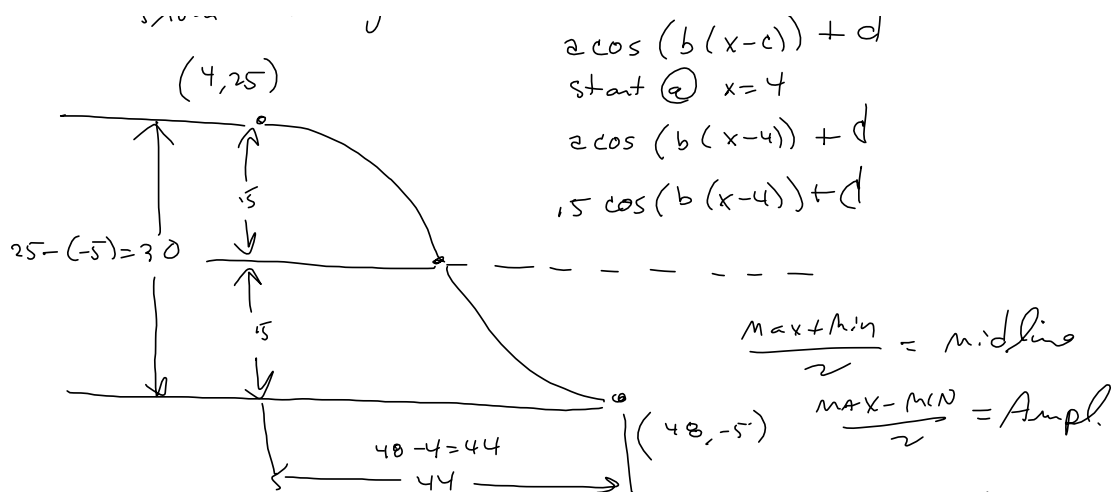
$$\frac{14}{4} = \frac{7}{2}$$

start

$$23 + \frac{7}{2} = \frac{46 + 7}{2} = \frac{53}{2}$$

$$\frac{53}{2} + \frac{7}{2} = \frac{60}{2} = 30$$

$$\frac{60}{2} + \frac{7}{2} = \frac{67}{2}$$



$a \cos(b(x-c)) + d$
 start @ $x=4$
 $a \cos(b(x-4)) + d$
 $15 \cos(b(x-4)) + d$

$\frac{\text{max} + \text{min}}{2} = \text{midline}$
 $\frac{\text{max} - \text{min}}{2} = \text{Ampl.}$

44 is $\frac{1}{2}$ -period : Trick : $15 \cos\left(\frac{\pi}{44}(x-4)\right) + d$
 Formally : 44 is $\frac{1}{2}T$ so $T = 88$
 want $bx = 2\pi$ when $x = 88$:
 $88b = 2\pi$
 $b = \frac{\pi}{44}$ *same deal.*

Now need a midline ! $25 - 15 = 10$
 $-5 + 15 = 10$ ✓
 So $15 \cos\left(\frac{\pi}{44}(x-4)\right) + 10$